

## CLAIMS

What is claimed is:

1. A synchronization signal for use in a wireless time division duplex communication system, the time division duplex communication system using time slots in repeating frames for communication, the synchronization signal is transmitted from a base station to identify a code group associated with the base station, the synchronization signal comprising:

a spreading code associated with a selected base station; and

binary bits identifying a code group associated with the selected base station modulated by said spreading code using binary phase shift keying.

2. The synchronization signal of claim 1 wherein the binary bits are produced by combining a binary code group identifier with a selected row of a Hadamard matrix.

3. The synchronization signal of claim 2 wherein the selected row is from a set of possibly selected rows of Hadamard matrix; the possibly selected rows comprising rows 24, 40, 56, 104, 120 and 136.

4. The synchronization signal of claim 1 wherein the signal is transmitted at a predetermined time offset from a time slot leading boundary.

5. The synchronization signal of claim 1 wherein the base station also transmits another signal, both the another signal and the synchronization signal are spread with the spreading code.

6. The synchronization signal of claim 5 wherein both the another signal and the synchronization signal are transmitted at a same predetermined time offset from a time slot leading boundary.

7. The synchronization signal of claim 1 wherein the synchronization signal is selectively transmitted using an in-phase or quadrature phase carrier.